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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,239	03/22/2004	Takahiro Ikeno	119196	9037

25944 7590 09/12/2008

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EXAMINER	
STOREY, WILLIAM C	
ART UNIT	PAPER NUMBER
2625	
MAIL DATE	DELIVERY MODE
09/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,239	IKENO ET AL.	
	Examiner	Art Unit	
	WILLIAM C. STOREY	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

cDETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 10, 29, & 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new matter was described as being supported by ¶75-78, 82 and fig. 7a and 7b. However, the inclusion of at least one of (a) and (b), is not supported by the specification. (A) and (b) pertain to two distinct embodiments and the specification has not provided support for them coexisting together.

3. Claims 10, 29, & 33 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims describe (at least something similar to) "a second portion for changing the on-off states of the first and second resolution setting signals at a moment of detection of the first and second resolution setting signal." This and fig. 7b seem to imply that the state is changed when the STB signal falls. However, the only description

found for how this may work is at ¶83 where it is described that latches may be arranged to latch the SP and CLK signals when the STB rises. This does not seem to provide support for changing the on-off state of the first and second resolution setting signals at the moment of detection of those signals that have been received within the resolution setting portion. Please point out enabling support.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 29 recites the limitation "the first and second resolution setting signals" in amendment to the claim. There is insufficient antecedent basis for this limitation in the claim. Though it is unclear as to definitively what the signals refer, the examiner will assume the applicant to have meant a first and a second resolution setting signal.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-7, 9, 12-20, 22, 24-27, & 30-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Saika.

Regarding claim 1, Saika discloses an image sensor comprising: a plurality of photoelectric converter elements (photodetectors for pixels) each operable to convert an

optical signal into an electric signal (¶ 24 & 26, figure 2 & 3. Saika discloses a sensor chip and representative pixels in electric circuitry.); a plurality of channel selector switches (can be flip flops corresponding to pixels) which correspond to said photoelectric converter elements and which are selectively turned on and off to selectively connect and disconnect output portions of the corresponding photoelectric converter elements to and from a common signal line (¶ 24, 26, 27), in synchronization with a clock pulse signal (figure 2, ¶ 27 & 30); and a resolution setting portion operable to receive a resolution setting timing signal (may be CLK), a first resolution setting signal (may be T1 pulse) and a second resolution setting signal (may be T2 pulse), and to select one of a plurality of on-off control patterns of said plurality of channel selector switches, on the basis of on-off states of the first and second resolution setting signals upon at least one of rising and falling of said resolution setting timing signal said plurality of channel selector switches being selectively turned on and off in the selected on-off control pattern, to set an image resolution value of the image sensor (¶ 32 & 33. It is clear from fig. 4 referenced from ¶32 that the rising of T1 and T2 (from fig. 7) cause the pixels to be on or off, thus enacting an on-off pattern corresponding to T1 and T2. As the figure shows rising affecting the on/off status of pixels, "at least one of rising and falling of said resolution setting timing signal" is provided for.).

Regarding claim 2, Saika discloses everything as applied above for claim 1. In addition, Saika discloses the image sensor, according to claim 1, further comprising a shift register circuit operable to selectively turn on and off said plurality of channel selector switches in the on-off control pattern selected by said resolution setting portion

(¶ 24), and wherein said resolution setting portion receives said resolution setting timing signal and said first and second resolution setting signals from an external device (Figure 2 shows an input for a clock signal; therefore, the clock signal must come into the circuit from an external source.), said resolution setting timing signal and said first and second resolution setting signals being selected from a group consisting of a control signal for setting said image resolution value, a start signal for starting said shift register circuit, and said clock pulse signal (figure 2, ¶ 27, 32, & 33. Saika discloses the resolution being selected by how the clock pulse operates.).

Regarding claim 3, Saika discloses everything as applied above for claim 2. In addition, Saika discloses the image sensor according to claim 2, wherein said resolution setting timing signal is one of said control signal and said clock pulse signal (figure 2, ¶ 27, 32, & 33. Saika discloses the resolution being selected by how the clock pulse operates.), and said resolution setting portion prevents said start signal from starting said shift register circuit for a predetermined length of time after a moment of said the rising or falling of said resolution setting timing signal (¶ 32. The timings of the clock prevent the starting of flip-flops in the shift register circuit.).

Regarding claim 4, Saika discloses everything as applied above for claim 2. In addition, Saika discloses the image sensor according to claim 2, wherein said shift register circuit is operable to simultaneously turn on a plurality of adjacent switches of said plurality of channel selector switches, when said image resolution value set by said resolution setting portion is other than a highest one of a plurality of image resolution values available by an operation of said resolution setting portion, the number of said

adjacent switches varying depending upon the image resolution value set by said resolution setting portion (Saika discloses thinning out the reading when a resolution of setting other than the highest is selected (¶ 32, 33). Usually, this is interpreted to make the switched go to an "off" state; however, whether the state is determined to be called "off" or "on" does not alter the patentability of claim 4. The relative fluctuation as consequence of not being in a state of highest resolution is taught. In addition, it is well known to use an inverter to switch a state from "on" to an "off". The thinning out could be performed in blocks or alternate form (¶ 36). Saika discloses that the timing of the clock signal may be set to have any of the switches on or off (¶ 32 & 36). Fig. 8 provides an example of the block reading for other than a highest resolution setting (since not all pixels are turned on). Fig. 8 shows the Vout with the adjacent pixels corresponding to g6-g8 turned on simultaneously for reading for the output.)

Regarding claim 5, Saika discloses everything as applied above for claim 1. In addition, Saika discloses the image sensor according to claim 1, wherein said resolution setting portion is operated to set said image resolution value before each line of image is read by operation of said plurality of photoelectric converter elements and said plurality of channel selector switches (¶ 27 discloses that a start signal and a clock signal are both necessary for the selection of pixels as disclosed in ¶ 26. ¶ 30 & 32 disclose that the resolution of the scan is set by the clock signal. Therefore, in order for any scan to operate, and thus, for the image to be read, it is necessary for a clock signal to be input, and inherently, a resolution to be dictated.)

Regarding claim 6, Saika discloses everything as applied above for claim 1. In addition, Saika discloses the image sensor according to claim 1, wherein said resolution setting portion is operated to set said image resolution value before each page of image is read by operation of said plurality of photoelectric converter elements and said plurality of channel selector switches (¶ 27 discloses that a start signal and a clock signal are both necessary for the selection of pixels as disclosed in ¶ 26. ¶ 30 & 32 disclose that the resolution of the scan is set by the clock signal. Therefore, in order for any scan to operate, and thus, for the image to be read, it is necessary for a clock signal to be input, and inherently, a resolution to be dictated.)

Regarding claim 7, Saika discloses everything as applied above for claim 1. In addition, Saika discloses the image sensor according to claim 1, wherein the electric signals generated as image signals by the electric signals generated by said plurality of photoelectric converter elements are accompanied by an image resolution signal indicative of the image resolution value set by said resolution setting portion (¶ 43 discloses having values set to resolution signals. The output of the pixels is dictated by the resolution signals (¶ 32).)

Regarding claim 9, Saika discloses an image sensor comprising: a plurality of photoelectric converter elements (photodetectors for pixels) each operable to convert an optical signal into an electric signal (¶ 24 & 26, figure 2 & 3. Saika discloses a sensor chip and representative pixels in electric circuitry.); a plurality of channel selector switches (can be flip flops corresponding to pixels) which correspond to said photoelectric converter elements and which are selectively turned on and off to

selectively connect and disconnect output portions of the corresponding photoelectric converter elements to and from a common signal line (¶ 24, 26, 27), in synchronization with a clock pulse signal (figure 2, ¶ 27 & 30); and a resolution setting portion operable to receive a first resolution setting signal (may be T1 pulse) and a second resolution setting signal (may be T2 pulse), before said plurality of channel selector switches are selectively turned on to connect said output portions of the corresponding photoelectric converter elements to said common signal line, said resolution setting portion being operable to select one of a plurality of on-off control patterns of said plurality of channel selector switches, on the basis of on-off states of said first and second resolution setting signals, said plurality of channel selector switches being selectively turned on and off in the selected on-off control pattern, to set an image resolution value of the image sensor (¶ 32 & 33. As T1 and T2 are needed to turn on the switches, and the pair would follow closely together, and as the whole resolution setting portion constitutes more than just a switch (includes wire or space before a signal would go into the channel selector pixel switch), the signals are received before the pixels are activated. Fig. 2 shows a line approaching the flip-flops and thus, the pixels. Thus, by having an approach space, inherently, the signals (as they are within the realm of the resolution setting portion, which may be an area larger than just that of exactly at the entrance to the flip-flops) would be able to be received before the channel selector switches are selectively turned on.).

Regarding claim 12, Saika discloses everything as applied above for claim 1. In addition, Saika discloses an image reading device comprising: an image sensor as

defined in claim 1; a resolution-setting-timing-signal generating portion operable to generate said resolution setting timing signal; a first resolution-setting-signal generating portion operable to generate said first resolution setting signal; a second resolution-setting-signal generating portion operable to generate said second resolution setting signal; and a control portion operable to control said resolution-setting-timing-signal generating portion and said first and second resolution-setting-signal generating portions (¶ 32, 33, 35, & above. Inherently, there must be generating portions for the signals to exist. It was disclosed how the signals were set so that the resolution may be altered. Inherently, there must be a control portion.).

Regarding claim 13, Saika discloses everything as applied above for claim 12. In addition, Saika discloses said image sensor further comprises a shift register circuit operable to selectively turn on and off said plurality of channel selector switches in the on-off control pattern selected by said resolution setting portion (¶ 24), and wherein said resolution setting timing signal and said first and second resolution setting signals which are respectively generated by said resolution-setting-timing-signal generating portion and said first and second resolution-setting-signal generating portions are selected from a group consisting of a control signal for setting said image resolution value, a start signal for starting said shift register circuit, and said clock pulse signal (figure 2, ¶ 27, 32, 33, 43, & above. Saika discloses the resolution being selected by how the clock pulse operates.).

Regarding claim 14, Saika discloses everything as applied above for claim 13. In addition, Saika discloses said resolution-setting-timing-signal generating portion and

said first and second resolution-setting-signal generating portions generate said control signal, said start signal and said clock pulse signal, respectively, and said control portion controls the on-off states of said start signal and said clock pulse signal upon at least one of rising and falling of said control signal. (¶ 24, 27, 32, 33, 35, & figure 2. Saika discloses the timing signal acting as a resolution-setting-timing-signal, a first and second resolution-setting-signal, a control signal for controlling the setting of switches, a start signal that is necessary for the shift register to work, and a clock pulse. Generating clock pulses that do everything just mentioned reads on claimed control portion controls the on-off states of said start signal and said clock pulse signal upon at least one of rising and falling of said control signal and thus, the whole claim.)

Regarding claim 15, Saika discloses everything as applied above for claim 13. In addition, Saika discloses the image reading device according to claim 13, wherein said resolution setting timing signal is one of said control signal and said clock pulse signal (figure 2, ¶ 27, 32, & 33. Saika discloses the resolution being selected by how the clock pulse operates.), and said shift register circuit is not started by said start signal for a predetermined length of time after a moment of said the rising or falling of said resolution setting timing signal (¶ 32. The timings of the clock prevent the starting of flip-flops in the shift register circuit.).

Regarding claim 16, Saika discloses everything as applied above for claim 13. In addition, Saika discloses the image reading device according to claim 13, wherein said resolution-setting-timing-signal generating portion generates one of said control signal and said clock pulse signal, as said resolution setting timing signal, and a control portion

controls one of said resolution-setting-timing-signal generating portion and said first and second resolution-setting-signal generating portions to generate said start signal again, to start said shift register circuit, after said image resolution value is set by said resolution setting portion (¶ 24, 27, 30, 32, 33, 35, 43, above, figure 2. Saika discloses the resolution setting being described in a timing signal, which is a clock pulse signal, and which controls switching. Once the values are set, the clock pulse signal contains a start signal required for the shift register.)

Regarding claim 17, Saika discloses everything as applied above for claim 12. Claim 17 is rejected based upon the same reasoning as applied for claim 6.

Regarding claim 18, Saika discloses everything as applied above for claim 12. Claim 18 is rejected based upon the same reasoning as applied for claim 5.

Regarding claim 19, Saika discloses everything as applied above for claim 12. Claim 19 is rejected based upon the same reasoning as applied for claim 4.

Regarding claim 20, Saika discloses everything as applied above for claim 19. Saika discloses the image reading device according to claim 19, wherein said shift register circuit is operable to turn on successive groups of the channel selector switches each group consisting of said plurality of adjacent switches, in synchronization with respective successive pulses of said clock pulse signal, when the image resolution value set by said resolution setting portion is other than the highest value. (Saika discloses thinning out the reading when a resolution of setting other than the highest is selected (¶ 32, 33). Higher values are usually assigned to higher resolution (¶ 43). Usually, this is interpreted to make the switched go to an "off" state; however, whether

the state is determined to be called "off" or "on" does not alter the patentability of claim 4. The relative fluctuation as consequence of not being in a state of highest resolution is taught. In addition, it is well known to use an inverter to switch a state from "on" to an "off". The thinning out could be performed in blocks or alternate form (¶ 36). Saika discloses that the timing of the clock signal may be set to have any of the switches on or off (¶ 32 & 36). Saika discloses that by the timing of the clock pulse chosen switches could be turned on or off (¶ 30). Fig. 8 provides an example of the block reading for other than a highest resolution setting (since not all pixels are turned on). Fig. 8 shows the Vout with the adjacent pixels corresponding to g6-g8 turned on simultaneously for reading for the output. This reads on the current claim.)

Regarding claim 22, Saika discloses everything as applied above for claim 12. Saika discloses the image reading device according to claim 12, wherein image signals generated by the electric signals generated by said plurality of photoelectric converter elements are followed by an image resolution signal indicative of the image resolution value set by said resolution setting portion. (Saika has disclosed above respective resolution signals being sent to select switches to be on or off that allow the signals that are read to be outputted. The resolution must be output in a signal in order for the pixels to be output. Thus, when a resolution signal will be input as a clock signal for numerous scans, it will certainly "follow" image signals generated by the electric signals generated by said plurality of photoelectric converter elements (see above, ¶ 24, 27, 43.))

Regarding claim 24, Saika discloses everything as applied above for claim 12. Saika discloses the image reading device according to claim 12, wherein said resolution-setting-timing-signal generating portion is operable to change a moment of rising or falling of said resolution setting timing signal, depending upon said image resolution value to be set by said resolution setting portion, while said first and second resolution-setting-signal generating portion is operable to generate said first and second resolution setting signals such that a pulse of each of said first and second resolution setting signals rises and falls at respective predetermined fixed first and second moments relative to said moment of rising or falling of said resolution setting timing signal (¶ 30, 31, 32, 33, 34, 35, 42, 45, figure 4. It has been disclosed how the signals rise and fall corresponding to moments that correspond to resolution settings.)

Regarding claim 25, Saika discloses everything as applied above for claim 12. Saika discloses the image reading device according to claim 12, wherein said first and second resolution-setting-timing-signal generating portions are operable to change a moment of at least one of rising and falling of each of said first and second resolution setting signals, depending upon said image resolution value to be set by said resolution setting portion, while said resolution-setting-timing-signal generating portion is operable to generate said resolution setting timing signal such that a pulse of said resolution setting timing signal rises and falls at respective predetermined fixed moments (¶ 30, 31, 32, 33, 34, 35, 42, 45, figure 4. It has been disclosed how the signals rise and fall corresponding to moments that correspond to resolution settings.)

Regarding claim 26, Saika discloses everything as applied above for claim 25. Saika discloses the image reading device according to claim 25, wherein said first and second resolution-setting-signal generating portions are operable to change the moment of falling of each of said first and second resolution setting signals relative to the moment of falling of said resolution setting timing signal (¶ 30, 31, 32, 33, 34, 35, 42, 45, figure 4. It has been disclosed how the signals rise and fall corresponding to moments that correspond to resolution settings.)

Regarding claim 27, Saika discloses everything as applied above for claim 25. Saika discloses the image reading device according to claim 25, wherein said first and second resolution-setting-signal generating portions are operable to change the moments of rising and falling of each of said first and second resolution setting signals relative to the moments of rising and falling of said resolution setting timing signal (¶ 30, 31, 32, 33, 34, 35, 42, 45, figure 4. It has been disclosed how the signals rise and fall corresponding to moments that correspond to resolution settings.)

Regarding claim 30, Saika discloses a method of setting an image resolution of an image sensor comprising a plurality of photoelectric converter elements (photodetectors for pixels) each operable to convert an optical signal into an electric signal (¶ 24 & 26, figure 2 & 3. Saika discloses a sensor chip and representative pixels in electric circuitry.), and a plurality of channel selector switches (can be flip flops corresponding to pixels) which correspond to said photoelectric converter elements and which are selectively turned on and off to selectively connect and disconnect output portions of the corresponding photoelectric converter elements to and from a common

signal line (¶ 24, 26, 27), in synchronization with a clock pulse signal (figure 2, ¶ 27 & 30), said method comprising the steps of: generating a resolution setting timing signal (may be CLK), a first resolution setting signal (may be T1 pulse) and a second resolution setting signal (may be T2 pulse; ¶ 30, 32, 33, 35); and selecting one of a plurality of on-off control patterns of said plurality of channel selector switches, on the basis of on-off states of the first and second resolution setting signals upon at least one of rising and falling of said resolution setting timing signal, said plurality of channel selector switches being selectively turned on and off in the selected on-off control pattern, to set an image resolution value of the image sensor (¶ 30, 32, 33, 35. It is clear from fig. 4 referenced from ¶32 that the rising of T1 and T2 (from fig. 7) cause the pixels to be on or off, thus enacting an on-off pattern corresponding to T1 and T2. As the figure shows rising affecting the on/off status of pixels, "at least one of rising and falling of said resolution setting timing signal" is provided for.).

Regarding claim 31, Saika disclosed everything as applied above for claim 30. In addition, claim 31 is rejected upon similar reasoning applied in claim 2.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 8, 23, & 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saika in view of Abe (JP 2002185698).

Regarding claim 8, Saika discloses everything claimed, as applied above (see claim 1); however, Saika fails to disclose image sensor according to claim 1, wherein the number of said plurality of on-off control patterns of said plurality of channel selector switches is equal to a multiple of four, and said plurality of on-off control patterns correspond to respective different values of the image resolution of the image sensor. Saika discloses the idea of having numerous resolution settings and the ability to set chosen pixels to send image data or not, and a specific number or multiple of resolution patterns does not make the claimed invention patentably distinct from the teachings of the prior art. For example, ¶32 discloses modifying the clock pulses to provide further lower resolutions. A multiple of four is an arbitrary selection with predictable results, and as the flexibility and capability has been provided, it would have clearly been obvious. However, Abe specifically discloses the idea of having sensor resolutions available at a multiple of four (¶14). It would have been obvious to provide multiple resolutions as Saika has disclosed his system capable of, and to have the number of resolutions available be a multiple of four, for the purpose of designer's choice.

Regarding claim 23, Saika discloses everything as applied above for claim 12. Claim 23 is rejected based upon the same reasoning as applied above for claim 8.

Regarding claim 32, Saika discloses everything as applied above for claim 30. Claim 32 is rejected based upon the same reasoning as applied above for claim 8.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the previous disclosures as applied to claim 20 above, and further in view of Kozuka (6473538).

Regarding claim 21, Saika discloses everything as applied above for claim 20. Saika discloses the image reading device according to claim 20, further comprising a feeding device operable to move a row of said photoelectric converter elements and an original carrying an image, relative to each other in a direction perpendicular to a direction of extension of said row (Figure 11, ¶ 47); however, Saika fails to disclose at a speed which increases with an increase in the number of said plurality of adjacent switches. (By the description of "said plurality of adjacent switches" given in claim 19, more switches are turned on when the resolution is not the highest. Thus, the output of a pixel is turned off when the switch is turned on. When the number of a plurality of adjacent switches is increased, the resolution will be getting increasingly lower. It is well known in the art to provide a faster reading time at lower resolutions than at higher resolutions.) Even so, the examiner maintains that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an increase in speed with a decrease in resolution, as taught by Kozuka.

In a similar field of endeavor, Kozuka provides an image sensor. Kozuka discloses the read speed increasing for low resolution vs. high resolution (fig. 7, col. 8, lines 4-6). Col. 7, lines 17-27 disclose that in the low resolution mode, an increase in adjacent and simultaneously enabled pixels occurs. Read speed allows for faster reading of the document, and in a document feeding scanner, it would have been obvious to have the document fed faster to accommodate the increased reading speed. In addition, it has been detailed how different resolutions may be set. Considering this, reading speed may accordingly be adjusted by an increase in simultaneous enablement

as shown in the example of fig. 7, or by the fact that a lower resolution provides a smaller representative output number of pixels than the higher and thus, would be able to accomplish a read inherently faster. This adjustment would provide increased flexibility and capability.

11. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over the previous disclosures as applied to claim 25 above, and further in view of Moss et al., hereinafter referred to as Moss.

Regarding claim 28, Saika discloses everything as applied above for claim 25. In addition, Saika discloses the image reading device according to claim 25, wherein said first and second resolution-setting-signal generating portions are operable to change the moments of rising and falling of each of said first and second resolution setting signals relative to moments of falling of two successive pulses of said resolution setting timing signal (Figure 6, figure 7, ¶ 34. Saika discloses the circuit of figure 6 producing the outputs shown based in figure 7. Refclk would read on claimed resolution setting timing signal, and clk1 and clk2 read on the first and second resolution setting signals. The circuit shows that the outputs are based on a continuous input clock pulse and a feedback circuit, therefore reading on change the moments of rising and falling ... relative to moments of two successive pulses of said resolution timing signal. However, Saika fails to specifically disclose the moments of the outputs being relative to the moments of falling of the input. However, Moss discloses on pg. 2 that when a control input C falls for the j-k flip flop, the output is affected. Fig. 6 shows the C input fed by a clock input which falls (see fig. 7). Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to modify Saika by specifically providing the moments of the outputs being relative to the moments of falling of the input, because it is well known by those skilled in the art for a flip-flop to be able to create the output on the falling of the input clock signal.

12. Claims 10-11, 33 (and 9) are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (JP 2002185698) in view of Saika (US 20020135827).

Regarding claim 10, Abe discloses an image sensor comprising:

a plurality of photoelectric converter elements each operable to convert an optical signal into an electric signal (drawing 1, transducers (¶9));

a plurality of channel selector switches which correspond to said photoelectric converter elements and which are selectively turned on and off to selectively connect and disconnect output portions of the corresponding photoelectric converter elements to and from a common signal line, in synchronization with a clock pulse signal (¶9 discloses synchronizing with a clock; drawing 1 and ¶9, 12, 13 provide for a plurality of channel selector switches (shift register corresponds to analog switches); drawing 1 provides a common signal line);

a shift register circuit operable to selectively turn on and off said plurality of channel selector switches (disclosed previously); and

a resolution setting portion operable to receive a first resolution setting signal and a second resolution setting signal (drawing 1-2, ¶14, 12 disclose two bits A0 and A1 able to select a particular resolution),

and to select one of a plurality of on-off control patterns of said plurality of channel selector switches, on the basis of on-off states of said first and second resolution setting signals, said plurality of channel selector switches being selectively turned on and off in the selected on-off control pattern, to set an image resolution value of the image sensor (the previous disclosures provided for the combinations of bits to select different resolutions which affect the different switches being turned on or off. Drawing 3 gives an example.),

said resolution setting portion including at least one of (a) a first portion for changing a moment at which the on-off states of the first and second resolution setting signals are detected to select one of the plurality of on-off control patterns of the plurality of channel selector switches, and (b) a second portion for changing the on-off states of the first and second resolution setting signals at a moment of detection of the first and second resolution setting signals (it has been disclosed that the 2 bits for resolution setting are changed to create a different resolution setting. It has also been disclosed how the transducer outputs are selected in synchronization with a clock. Further, drawing 4, ¶17, ¶19 disclose the resolution setting operating in synchronization with a clock. Thus, inherently, the on-off states of the 2 bits are set to set the resolution in synchronization with the clock (thus, the setting occurring at the moment of detection of the setting signals).),

Regarding the limitation wherein said shift register circuit is operable to simultaneously turn on a plurality of adjacent switches of said plurality of channel selector switches, when said image resolution value set by said resolution setting

portion is other than a highest one of a plurality of image resolution values available by an operation of said resolution setting portion, Abe discloses being able to selectively set resolution for portions of the image and to set different resolutions at clock sequences (¶16-19). Although it is currently not completely clear from the machine translation whether or not the limitation is provided for, the examiner maintains that the limitation was well known in the art as taught by Saika.

In a similar field of endeavor, Saika discloses an image sensor that may vary resolution. In addition, thinning out for lower resolution (¶31-32) could be performed in blocks (plurality of adjacent switches) (¶36-37 from Saika). Fig. 8 provides an example of the block reading for other than a highest resolution setting (since not all pixels are turned on). Fig. 8 shows the Vout with the adjacent pixels corresponding to g6-g8 turned on simultaneously for reading for the output. Thus, the idea of scanning in block form has been taught. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide scanning in block form for the purpose of providing greater control and conservation.

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the number of said adjacent switches varying depending upon the image resolution value set by said resolution setting portion for the purpose of allowing for greater flexibility and maintaining control. In order to increase the resolution, the number of transducers outputting would be increased as previously disclosed. In order to increase the resolution and maintain the control from scanning in

a block, it would be obvious to increase the number of adjacent switches with an increase in resolution, or vice versa for a decrease.

Regarding claim 11, the claim inherits everything as applied above for claim 10. It has been disclosed how Abe may selectively switch resolution for different portions of an input image and doing it in synchronization with a clock (¶16-18 and above). In addition, Saika has provided the idea of scanning in blocks for lower resolution. The previous disclosure of Saika provided the idea of altering to different resolutions as well. The system's shift register previously discussed would be at least obviously capable (operable) to turn on successive groups of the channel selector switches each group consisting of said plurality of adjacent switches, in synchronization with respective successive pulses of said clock pulse signal, when the image resolution value set by said resolution setting portion is other than the highest value for the purpose of working with different controlled portions of an image while still having control over resolution.

In addition, "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard

Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original)."-MPEP 2114-R1. The sensor is categorically representative of an apparatus. Therefore, any structurally-equivalent system *capable* of performing the functionality described in the claim would anticipate the claim.

Regarding claim 33, the claim is rejected based upon similar reasoning as applied above for claim 10. In addition, claim 9 (which 33 is dependent on) mentions the limitation of before said plurality of channel selector switches are selectively turned on to connect said output portions of the corresponding photoelectric converter elements to said common signal line. However, from drawing 1 of Abe, it is clear that the signals are received into the setting portion, as at least that whole picture may be taken to be the resolution setting portion, since the two signals have an approach before the switches are turned on.

Response to Arguments

13. Applicant's arguments filed 4/21/08 have been fully considered but they are not persuasive.

Regarding the discussion for claims 1 & 30 (and dependents), the substance of the applicant's first proposal regarding the claim(s) surrounds the idea that "Saika fails to teach selecting one of the on-off control patterns of the channel selector switches on the basis of the on-off states of the clock pulse signal CLK and start signal SIN at the moment of either rising or falling of a resolution timing signal or at the moment of both rising and falling of the timing signal, as recited in claims 1 and 30." A CLK signal may

read on claimed resolution setting timing signal. Saika teaches selecting a low or high resolution reading pattern based on T1 and T2 pulses (correspond to first resolution setting signal and a second resolution setting signal, see fig. 4, 7, and ¶34 for further understanding). It is clear from fig. 4 referenced from ¶32 that the rising of T1 and T2 (from fig. 7) cause the pixels to be on or off, thus enacting an on-off pattern corresponding to T1 and T2. As the figure shows rising affecting the on/off status of pixels, "at least one of rising and falling of said resolution setting timing signal" is provided for.

Regarding the discussion for claim 1 (and dependents), the substance of the applicant's second proposal regarding the claim(s) surrounds the idea that Saika does not teach the use of a resolution setting timing signal. The applicant then goes on to describe material that is not included in the claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The resolution setting timing signal is a CLK signal, like in figure 4.

Regarding the discussion for claim 9 (and dependents), the substance of the applicant's proposal regarding the claim(s) surrounds the idea that Saika does not teach or suggest a resolution setting portion operable to receive a first resolution setting signal and a second resolution setting signal, before said plurality of channel selector switches are selectively turned on to connect said output portions of the corresponding photoelectric converter elements to said common signal line, as recited in claim 9. However, as T1 and T2 are needed to turn on the switches, and the pair would follow

closely together, and as the whole resolution setting portion constitutes more than just a switch (includes wire or space before a signal would go into the channel selector pixel switch), the signals are received before the pixels are activated. Fig. 2 shows a line approaching the flip-flops and thus, the pixels. Thus, by having an approach space, inherently, the signals (as they are within the realm of the resolution setting portion, which may be an area larger than just that of exactly at the entrance to the flip-flops) would be able to be received before the channel selector switches are selectively turned on. In addition, once again the applicant draws in outside assumptions. Specifically, the applicant refers to actions occurring "during the reading operation." However, this language is not mentioned in the claims. The claim language merely refers to a resolution setting portion operable (capable of) receiving a first and second resolution setting signal, before the plurality of channel selector switches are turned on. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, the examiner notes to the applicant that "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439

F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original)."-MPEP 2114-R1. The sensor is categorically representative of an apparatus. Therefore, any structurally-equivalent system *capable* of performing the functionality described in the claim would anticipate the claim.

Regarding the discussion for claim 10 (and dependents), the substance of the applicant's proposal regarding the claim(s) surrounds the idea that Saika does not disclose simultaneously turning on a plurality of adjacent switches of the plurality of channel selector switches, when the image resolution set by the resolution setting portion is other than a highest one of a plurality of image resolution values available. The applicant then declares that ¶32 and 33 did not provide this feature. However, ¶32 and 33 were not the only points of reference in Saika cited for this limitation. It was mentioned in the previous office action that the thinning out for lower resolution could be performed in blocks (plurality of adjacent switches) (¶36 from Saika). Fig. 8 provides an example of the block reading for other than a highest resolution setting (since not all pixels are turned on). Fig. 8 shows the Vout with the adjacent pixels corresponding to g6-g8 turned on simultaneously for reading for the output.

In addition, "While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44

USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original)."-MPEP 2114-R1. The sensor is categorically representative of an apparatus. Therefore, any structurally-equivalent system *capable* of performing the functionality described in the claim would anticipate the claim.

Regarding the discussion for claims 8, 23, & 32 (and dependents), the substance of the applicant's proposal regarding the claim(s) surrounds the idea that use of official notice does not provide a proper rejection of the claims. However, the examiner believes that the applicant misunderstood the reasoning previously provided with respect to these claims. The examiner used official notice to point out the fact that it is well known to have a different number of options (such as control patterns). Not every inventor has to use the same number of options. From that observation, the examiner goes on to conclude that it would have been obvious to have the number of available patterns be a multiple of four, as Saika has already disclosed multiple resolution settings, the ability to set chosen pixels to send image data or not, and a specific number or multiple of resolution patterns does not make the claimed invention patentably distinct from the teachings of the prior art. Saika disclosed that different on

off patterns may be used for different resolution settings. For example, ¶32 discloses modifying the clock pulses to provide further lower resolutions. A multiple of four is an arbitrary selection with predictable results, and as the flexibility and capability has been provided, it would have clearly been obvious. The examiner believes that the misunderstanding that occurred has been resolved, and that the applicant would not believe that an individual could not provide a different number of options (such that an individual would not be able to have an option to select from red, green, and blue balls instead of just red and green balls, for example). From this explanation of reasoning, the examiner believes the issue of contention to be resolved. However, Abe specifically discloses the idea of having sensor resolutions available at a multiple of four (¶14). It would have been obvious to provide multiple resolutions as Saika has disclosed his system capable of, and to have the number of resolutions available be a multiple of four, for the purpose of designer's choice.

Regarding the discussion for claim 21 (and dependents), the substance of the applicant's proposal regarding the claim(s) surrounds the idea that it is not well known in the art to provide a speed which increases with an decrease in resolution (corresponding to the increase in the number of said plurality of adjacent switches). In a similar field of endeavor, Kozuka provides an image sensor. Kozuka discloses the read speed increasing for low resolution vs. high resolution (fig. 7, col. 8, lines 4-6). Col. 7, lines 17-27 disclose that in the low resolution mode, an increase in adjacent and simultaneously enabled pixels occurs. Read speed allows for faster reading of the document, and in a document feeding scanner, it would have been obvious to have the

document fed faster to accommodate the increased reading speed. In addition, it has been detailed how different resolutions may be set. Considering this, reading speed may accordingly be adjusted by an increase in simultaneous enablement as shown in the example of fig. 7, or by the fact that a lower resolution provides a smaller representative output number of pixels than the higher and thus, would be able to accomplish a read inherently faster. This adjustment would provide increased flexibility and capability.

Regarding the discussion for claim 28 (and dependents), the substance of the applicant's proposal regarding the claim(s) surrounds the idea that it is not well known in the art to have a flip-flop triggered by the falling of a clock. The examiner maintains the previous rejection and provides the applicant with the attached Moss et al. reference. Specifically, Moss et al. discloses on pg. 2 that when a control input C falls, the output is affected. Fig. 6 shows the C input fed by a clock input which falls (see fig. 7).

14. Applicant's arguments with respect to the new additions to claims 10, 29, & 33 have been considered but are moot in view of the new ground(s) of rejection. The limitation is new and has not been previously considered.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM C. STOREY whose telephone number is (571)270-3576. The examiner can normally be reached on Monday - Friday Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on (571) 272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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